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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/400,507	09/21/1999	MARK ANTHONY CESARE	ST9-99-034	3492

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EXAMINER
FLEURANTIN, JEAN B

ART UNIT	PAPER NUMBER
2172	

DATE MAILED: 11/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/400,507	CESARE ET AL.	
	Examiner	Art Unit	
	Jean B Fleurantin	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 September 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5,6,13,14,19,20 and 27* is/are allowed.

6)☒ Claim(s) *1-4,7-12,15-18 and 21-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Claim 27 is added.

Claims 1-27 are remained pending for examination.

2. Applicant's arguments submitted on 09/03/2002 with respect to claims 1-27 on pages 4-10 have been considered but are moot in view of the new ground(s) of rejection. Examiner discusses the new added claim 27 in the following rejection.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-12, 15-18 and 21-26 are rejected under U.S.C. 103(a) as being unpatentable over Pirahesh et al. (US Pat. No. 5,548,758) (submitted by the Applicant "Pirahesh").

As per claims 1 and 17, Pirahesh teaches method for transforming data in an input table in a database in a server in communication with a client (thus, database management systems performed by computers, to the optimization of SQL queries in a relational database management system using early-out join transformations; which is readable as transforming data in an input table in a database in a server in communication with a client) (see col. 1, lines 12-15), as claimed comprises accessing a copy of the input table from the database (thus, system held

statistics on the data to be accessed, the number of distinct values in a particular column; which is readable as accessing a copy of the input table from the database) (see 3, lines 21-41);

transforming, within the server, data in the accessed input table according to each rule specified in the transform command (thus, the step of generating a compiled set of runtime structures called an application plan from the compiled SQL statements, generally the SQL statements received as input from the user specify only the data that the user wants but not how to get to it, this step considers both the available access paths (indexes, sequential reads, etc.) and system held statistics on the data to be accessed (the size of the table, the number of distinct values in a particular column, etc.), to choose what it considers to be the most efficient access path for the query; which is readable as transforming, within the server, data in the accessed input table according to each rule specified in the transform command)(see col. 3, lines 29-38). But, Pirahesh does not explicitly indicate steps of receiving from the client a transform command indicating an input data table name in the database and at least one rule indicating at least one cell in the input table to transform and a transform operation to perform with respect to the at least one cell. However, Pirahesh indicates the "where clause" determines which rows should be returned in the result table, generally the "where clause" contains a search condition that must be satisfied by each row returned in the result table, the rows that meet the search condition form an intermediate set, which is then processed further according to specifications in the select clause (see col. 4, lines 38-60). Further, in column 4, lines 52 through 60, Pirahesh teaches the join operation is usually implied by naming more than one table or view in the from clause of a select

statement, although not required, join operations normally include a where clause that identifies the columns through which the rows can be combined, the where clause may also include a predicate comprising one or more conditional operators that are used to select the rows to be joined. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Pirahesh with steps of receiving from the client a transform command indicating an input data table name in the database and at least one rule indicating at least one cell in the input table to transform and a transform operation to perform with respect to the at least one cell. This modification would allow the teachings of Pirahesh to improve the performance of the method and system program and data structure for transforming database, and provide any number of users to access the same data simultaneously (see col. 3, lines 6-7).

As per claims 2, 10 and 26, Pirahesh teaches a method as claimed, wherein the client is a client computer that communicates with the server over a network, wherein the transform command is transmitted from the client computer to the server over the network (thus, database management systems performed by computers, which is equivalent to wherein the transform command is transmitted from the client computer to the server over the network) (see col. 1, lines 12-13).

As per claims 3 and 11, the limitations of claims 3 and 11 are rejected in the analysis of claim 1, and these claims are rejected on that basis.

As per claims 4, 12, 18 and 23, in addition to the discussion in claim 1, Pirahesh further teaches wherein an application of a subsequent transform operation following a previous transform operation on one cell transforms previously transformed data in the cell (thus, using an early-out join over a more general many-to-many join is improved performance, each row in the outer table only has to be joined with at most one row in the inner table, consequently less rows need to be joined, furthermore duplicate elimination for the final distinct keyword; which is readable as wherein an application of a subsequent transform operation following a previous transform operation on one cell transforms previously transformed data in the cell) (see col. 6, lines 21-26).

As per claims 7 and 15, Pirahesh teaches a method as claimed, wherein the client cannot affect the execution of the transform command during the execution of the transform command, whereby the transform command executes in the server independently of the client (thus, for each inner column that is referenced after the join, if any of the conditions are satisfied at block 512 then the join can be transformed into an early-out join and thus control transfers from block 512 to block 510, on the other hand for each inner column that is referenced after the join, if the conditions are not satisfied, then the join cannot be transformed into an early-out join; which is readable as wherein the client cannot affect the execution of the transform command during the execution of the transform command) (see col. 9, lines 7-15).

As per claims 8, 16, 21 and 25, Pirahesh teaches a method as claimed, wherein the transform command further comprises multiple rules, wherein each rule specifies at least one

column in the input table and at least one transform operation to perform on each specified column in the input table, wherein at least two rules specify different columns in the input table and different transform operations to apply to each specified column (thus, the steps for performing the early-out joins may be implemented for both nested-loop joins and sort-merge join, when the join is actually executed, a check is made to see if the join is an early-out join, e.g., by examining the flag associated with the join, if so then the steps performed by the relational database management system software in executing the join operation must ensure that at most one match from the inner table is output for each row of the outer table in the join; which is readable as wherein each rule specifies at least one column in the input table and at least one transform operation to perform on each specified column in the input table, wherein at least two rules specify different columns in the input table and different transform operations to apply to each specified column) (see col. 9, lines 31-40).

As per claim 9, in addition to the discussion in claim 1, Pirahesh further teaches system for transforming data, comprises a client process (thus, input of SQL statements into the computer system 102 from the user, which is readable as a client process) (see col. 3, lines 24-26);

a server including a database and an input table in communication with the client process (thus, systems performed by computers, which is equivalent to server including a database and an input table in communication with the client process) (see col. 1, lines 12-13).

As per claim 22, in addition to the discussion in claim 1, Pirahesh further teaches a memory device including a command for performing a transform operation on a computer database input table, the command comprising an input data table name parameter indicating the input table subject to the transform operation (thus, the translation of the query into one or more query blocks which are representations of the outer query and any subqueries or inner queries within the outer query, wherein the query blocks are an internal representation of the user's query maintained in the memory of the computer system 102 by the relational database management system software, block 406 represents the generation of join plans from the query blocks, block 408 represents the relational database management system software performing the early-out join transformations for the join plans; which is readable as the command comprising an input data table name parameter indicating the input table subject to the transform operation) (see col. 6, lines 35-44).

As per claim 24, in addition to the discussion in claim 1, Pirahesh teaches wherein the transform input table is writing the transformed input table to the output table if the transform command indicates the output table (thus, then the join can be transformed into an early-out join and thus control transfers from block 508 to block 510, on the other hand if columns in the inner table are referenced after the join then the relational database management system software must check that further conditions are satisfied before the join can be transformed into an early-out join and thus control transfers from block 508 to block 512; which is readable as writing the

transformed input table to the output table if the transform command indicates the output table) (see col. 7, lines 9-20); and

updating the input table in the database with the transformed input table if the transform command does not indicate one output table (see cols. 6-7, lines 66-7).

Allowable Subject Matter

4. Claims 5-6, 13-14, 19-20 and 27 are allowed.

The following is an examiner's statement of reasons for allowance:

The present application has been thoroughly reviewed. Upon extensive diverse databases searches, and a full review of applicant arguments, the examiner deems that the claimed features "writing the transformed input table data to the database in the server after performing all transform operations specified in the rules of the transform command against the accessing input table" in conjunction with other elements of the independent claims would not found anticipated or obvious over the prior art made of record. Therefore, claims 5-6, 13-14, 19-20 and 27 are hereby allowed.

Conclusion

5. Any inquiry concerning this communication from examiner should be directed to Jean Bolte Fleurantin at (703) 308-6718. The examiner can normally be reached on Monday through Friday from 7:30 A.M. to 6:00 P.M.

If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Mrs. KIM VU can be reached at **(703) 305-8449.** The FAX phone numbers for the

Group 2100 Customer Service Center are: ***After Final*** **(703) 746-7238**, ***Official*** **(703) 746-7239**, and ***Non-Official (703) 746-7240***. NOTE: Documents transmitted by facsimile will be entered as official documents on the file wrapper unless clearly marked "***DRAFT***".

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2100 Customer Service Center receptionist whose telephone numbers are **(703) 306-5631, (703) 306-5632, (703) 306-5633**.

Jean Bolte Fleurantin

November 18, 2002

JBF/

Afford w. Kindred